

## CLAIMS

1. A method of making a stratified paper comprising the steps of:
  - 5 (a) introducing a pulp suspension into a headbox of a paper making machine, which headbox has at least one ultrasonic means;
  - (b) subjecting said pulp suspension inside the headbox to acoustic radiation forces produced by said ultrasonic means;
  - (c) causing the pulp suspension to separate into two or more  
10 fractions according to the relative sizes of the fibers;
  - (d) depositing said pulp suspension onto a wire;
  - (e) draining said pulp suspension; and
  - (f) drying said pulp suspension.
- 15 2. The method of claim 1 wherein said ultrasonic means is an ultrasonic transducer.
3. The method of claim 1 wherein said ultrasonic means is mounted on the top wall of the inside of the headbox.
- 20 4. The method of claim 1 wherein said ultrasonic means is mounted on the bottom wall of the inside of the headbox.
5. The method of claim 1 wherein said ultrasonic means is mounted on the top  
25 and the bottom wall of the inside of the headbox.
6. The method of claim 1 wherein the wall of said headbox is replaced with an ultrasound transducer.
- 30 7. The method of claim 1 wherein the pulp suspension forms a pulp stream having one region rich in smaller fibers and another region rich in course fibers.

8. The method of claim 1 wherein the pulp suspension forms a pulp stream having one region rich in fine fibers and another rich in course fibers that is sandwiched inside the fine fibers.
- 5 9. The method of claim 1, further comprising a source of electrical power connected to and configured to energize said ultrasonic means.
10. The method of claim 1, further comprising at least one receiver.
- 10 11. The method of claim 1 wherein the acoustic radiation forces in the range of  $0 \text{ W/cm}^2$  to  $150 \text{ W/cm}^2$ .
12. The method of claim 2 wherein the transducer has a frequency in the range of 20 kHz to 150 MHz.